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REMARKS

Claims 1-39 are active and pending in the present applications. All claims stand rejected. In response claim 16 has been amended and claim 22 cancelled.

Rejections under 35 USC §102

A. Claims 1-5, 8, 9, 11-19, 22, 23, 30-34 and 36-38 stand rejected under 35 USC §102 as anticipated by Leifer (U.S. Pat. No. 6,459,171).

The system of Leifer allows different “applications” to share a shared device that is powered by a shared power supply. Each application has an associated power source and when the application wants to use the shared device, its associated power source is connected to the shared power supply. Otherwise, the associated power source is not connected to the shared power supply.

Claim 1 requires that the power management module is configured to operate each of the first and second batteries in a pulse current discharge mode while supplying continuous current to a load.

Applicants urge that the system of Leifer does not identically disclose these recited claim features. The timing diagrams of Leifer illustrate that there are frequently periods where none of power sources (203, 205, 207) are connected to the shared power supply 215. Thus, Leifer does not identically disclose supplying continuous current to a load, as recited in claim 1. To make this point clear, Leifer describes the operation of the circuitry of Figure 2 by explaining that “isolation is provided between power sources 203, 205, 207 because only one switch 219, 221 or 223 is ever on at a time.” (See column 5, lines 27-30). Thus, there is no supplying of continuous current, as required by the claim.

Because Leifer does not identically disclose each and every feature recited in claim 1, Leifer does not anticipate this claim as meant under 35 USC §102. Accordingly, reconsideration and withdrawal of the rejection under 35 USC §102 of claim 1, and its dependent claims 2-5, 8 and 9, are respectfully requested.

Claim 11 recites “means for operating each of the first and second batteries in a pulse current discharge mode while supplying continuous current to a load.” For at least the same reasons

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provided above with respect to claim 1, Applicants urge that Leifer does not identically disclose every feature recited in claim 11. Because Leifer does not identically disclose each and every feature recited in claim 11, Leifer does not anticipate this claim as meant under 35 USC §102. Accordingly, reconsideration and withdrawal of the rejection under 35 USC §102 of claim 11, and its dependent claims 12-15, are respectfully requested.

Claim 16 has been amended to incorporate the features originally recited in claim 22. Accordingly, claim 22 has been canceled. As amended, claim 16 requires that the first battery is coupled to the load before the second battery is removed from the load. Leifer does not disclose this feature. The Examiner contends in the Office Action (Page 7) that "the word 'successively' implies each switch is turned on following each other without interruption." Applicants urge that while "successive" or "successively" does encompass the concept of events occurring according to an ordered sequence without intervening events, there is no requirement in the normally accepted meaning of these terms that a next event must begin exactly at the precise moment the previous event ends. Regardless of the interpretation adopted, later in the passage of Leifer relied on by the Examiner, Leifer explains that in order to provide isolation between the power sources, no more than one switch may ever be on at the same time. Thus, Leifer does not identically disclose that the first battery is coupled to the load before the second battery is removed from the load, as required by amended claim 22.

Because Leifer does not identically disclose each and every feature recited in claim 16, Leifer does not anticipate this claim as meant under 35 USC §102. Accordingly, reconsideration and withdrawal of the rejection under 35 USC §102 of claim 16, and its dependent claims 17, 18, 19 and 23, are respectfully requested.

Claim 30 requires a power management module configured to operate each of the first and second batteries in a pulse current discharge mode while supplying continuous current to the processor. For at least the same reasons provided above with respect to claim 1, Applicants urge that Leifer does not identically disclose every feature recited in claim 30. Because Leifer does not identically disclose each and every feature recited in claim 30, Leifer does not anticipate this claim as meant under 35 USC §102. Accordingly, reconsideration and withdrawal of the rejection under 35 USC §102 of claim 30, and its dependent claims 31, 32, 33, 34, 36, 37 and 38, are respectfully requested.

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B. Claims 25, 26, and 28 stand rejected under 35 USC §102 as being anticipated by Odaohhara (US 2001/0054878).

The method of claim 25 requires a) disconnecting the first battery from the load while maintaining the connection between the second battery and the load and b) reconnecting the first battery to the load while maintaining the connection between the second battery and the load.

As Applicants understand the Examiner's explanation of Odaohhara, first and second batteries are elements 112A and 112B while the load is the DC-DC converter 66. Paragraph [0115] of Odaohhara provide the details of how the circuitry of Figure 2 operates to accomplish a switch from one battery to another.

Based on Figure 9, the protective circuits 110A and 110B of Figure 2 each include a respective FET labeled FET7 and FET9. The switching of FET1, FET7, FET2 and FET9 accomplish the connection of a selected battery to the DC-DC converter 66. In particular, when battery 112A is connected, FET1 and FET7 are "ON" and FET2 and FET9 are "OFF". According to Odaohhara, the first step is to turn FET1 "OFF"; the next step is to turn FET9 "ON", the third step is to turn FET7 "OFF", and the final step is to turn FET2 "ON". In this sequence of events, battery 112A is disconnected from the load in the first step when FET1 is turned "OFF" and battery 112B is not connected to the load until the final step when both FET2 and FET9 are "ON". During the middle steps, both batteries are disconnected from the load.

Accordingly, Applicants urge that Odaohhara does not identically disclose maintaining connections between the load and the batteries as required by claim 25. Because Odaohhara does not identically disclose each and every feature recited in claim 25, Odaohhara does not anticipate this claim as meant under 35 USC §102. Accordingly, reconsideration and withdrawal of the rejection under 35 USC §102 of claim 25, and its dependent claims 26 and 28, are respectfully requested.

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PATENT**Rejections under 35 USC §103**

A. Claims 10, 24 and 39 stand rejected under 35 USC §103 as unpatentable over Leifer in view of Choo (U.S. Patent No. 6,452,362).

With respect to claim 10, 24 and 39 the Examiner admits that Leifer does not teach the switch module is configured to control the switch to couple one of the first and second batteries having the highest voltage to the load. However, the Examiner contends that Choo discloses this feature and concludes it would have been obvious to modify Leifer in this manner "in order to maximize the usage time of batteries."

As described above, Applicants urge that Leifer does not disclose or suggest at least some of the features recited in independent claims 1, 16 and 30. Furthermore, Choo also does not disclose or suggest these claim limitations missing from Leifer. Accordingly, the combination of Leifer and Choo does not disclose or suggest all the limitations recited in claims dependent from claims 1, 16, and 30 and, therefore, does not provide the legal support for a prima facie case of obviousness under 35 USC §103. Applicants, therefore, respectfully request reconsideration and withdrawal of the rejection under 35 USC §103 of claims 10, 24 and 39.

Additionally, Applicants urge that one of ordinary skill would not have been realistically motivated to modify the system of Leifer based on Choo in the specific way suggested by the Examiner. The system of Leifer operates to share power at a shared device according to the usage of different parties. The examples in Leifer discuss equitably connecting different power sources based on how much the "owners" of those power sources are using a shared resource. Within the system of Leifer, the power source for a user may be at a higher voltage than another power source but the system connects to the power sources based on who is using the system not based on who has the larger power source. Thus, one of ordinary skill would not have been realistically motivated to modify the system of Leifer to couple power sources in an entirely different manner that is contrary to the goals Leifer's system is attempting to accomplish. Without a realistic motivation to combine the teachings of these references, they fail to provide the legal basis for establishing a prima facie case of obviousness under 35 USC §103. Accordingly, reconsideration and withdrawal of the rejection under 35 USC §103 of claims 10, 24 and 39 are respectfully requested.

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PATENT**B. Claim 29 stands rejected under 35 USC §103 as unpatentable over Odaohhara in view of Choo.**

The Examiner admits that Odaohhara does not teach "determining the voltage measured at the second battery is substantially equal to the voltage measured at the first battery after the first battery is disconnected from the load, the reconnection of the first battery to the load being in response to such determination that the measured voltages at the first and second batteries are substantially equal." However, the Examiner contends that Choo teaches this feature and that it would have been obvious to modify Odaohhara in this manner "in order to maximize the usage time of the batteries".

As described above, Applicants urge that Odaohhara does not disclose or suggest at least some of the features recited in independent claim 25. Furthermore, Choo also does not disclose or suggest these claim limitations missing from Odaohhara. Accordingly, the combination of Odaohhara and Choo does not disclose or suggest all the limitations recited in claims dependent from claim 25 and, therefore, does not provide the legal support for a prima facie case of obviousness under 35 USC §103. Applicants, therefore, respectfully request reconsideration and withdrawal of the rejection under 35 USC §103 of claim 29.

C. Claim 35 Stands rejected under 35 USC §103 as unpatentable over Leifer in view of Moles (U.S. Patent No. 6,522,873).

The Examiner admits that Leifer does not teach the switch control module is further configured to control the switch such that the first and second batteries are continuously coupled to the processor if the processor is in the idle state. The Examiner contends that Moles teaches this features and concludes it would have been obvious to modify Leifer in this manner "in order to improve wireless communication devices that are less likely to losing a communication."

Applicants respectfully disagree with the Examiner's characterization of Moles. In particular, Moles uses an external power supply if present or switches to a battery power supply when the external supply is not present (See column 6, lines 22-28). When being powered by the battery power supply, slotted mode operation is enabled and when being powered by the external power supply slotted mode operation is disabled (See column 6, lines 30-38). In other words, Moles detects the presence or absence of a power supply and, based on that determination, controls the

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operation of a device. This behavior of Moles is unrelated to the concept of continuously coupling first and second batteries if the processor is in the idle state.

Applicants agree with the Examiner that Leifer does not disclose or suggest that the first and second batteries are continuously coupled to the processor if the processor is in the idle state; however, Applicants urge that Moles does not disclose or suggest this recited claim feature either.

Accordingly, neither Leifer or Moles, either individually or in combination, disclose or suggest every feature recited in claim 35 and, therefore, do not provide the legal support for a prima facie case of obviousness under 35 USC §103. Applicants, therefore, respectfully request reconsideration and withdrawal of the rejection under 35 USC §103 of claim 35.

Additionally, Applicants urge that one of ordinary skill would not have been realistically motivated to modify the system of Leifer in view of Moles in the specific way suggested by the Examiner. Leifer explicitly teaches isolation of the different power sources and designed the operation of the switches to ensure such isolation is unequivocally provided. (See column 5, lines 27-34). Even if Moles could be construed as teaching simultaneous connection of two batteries, such a connection would be in direct contrast to the teachings of Leifer. Accordingly, one of ordinary skill would not have been motivated to modify Leifer in this manner. Without a realistic motivation to combine the teachings of these references, they fail to provide the legal basis for establishing a prima facie case of obviousness under 35 USC §103. Accordingly, reconsideration and withdrawal of the rejection under 35 USC §103 of claim 35 are respectfully requested.

D. Claims 6 and 20 stand rejected under 35 USC §103 as unpatentable over Leifer in view of Moles and Odaohhara (U.S. Patent No. 6,664,764).

The Examiner admits that Leifer does not teach the switch control module is further configured to control the switch such that the first and second batteries are continuously coupled to the load if the measured current is below a threshold. However, the Examiner contends that Moles teaches continuously coupling two batteries to a load but admits that Leifer and Moles do not teach "if the measured current is below a threshold". The Examiner contends that Odaohhara teach "if the measured current is below a threshold" and concludes it would have been obvious to combine the teachings of Leifer, Moles and Odaohhara "in order to prolong battery lifetime."

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Applicants urge that one of ordinary skill would not have been realistically motivated to modify the system of Leifer in view of Moles in the specific way suggested by the Examiner. Leifer explicitly teaches isolation of the different power sources and designed the operation of the switches to ensure such isolation is unequivocally provided. (See column 5, lines 27-34). Even if Moles could be construed as teaching simultaneous connection of two batteries, such a connection would be in direct contrast to the teachings of Leifer. Accordingly, one of ordinary skill would not have been motivated to modify Leifer in this manner. Without a realistic motivation to combine the teachings of these references, they fail, even in view of Odaohhara, to provide the legal basis for establishing a prima facie case of obviousness under 35 USC §103. Accordingly, reconsideration and withdrawal of the rejection under 35 USC §103 of claims 6 and 20 are respectfully requested.

E. Claims 7 and 21 stand rejected under 35 USC §103 as unpatentable over Leifer in view of Ha (U.S. Patent No. 6,134,457).

The Examiner admits that Leifer does not teach "that if the measured current reaches a threshold for a period of time" but contends that Ha teaches "a traffic state if the measured current reaches a threshold for a period of time". The Examiner concludes that it would have been obvious to combine the teachings of Leifer and Ha "in order to differentiate current consumption based on operating modes."

Claim 7 requires that each of the first and second batteries are intermittently coupled to the load if the measured current reaches a threshold for a period of time. This measured current is, according to claim 5, the current supplied to the load. Claim 21 includes a similar limitation but substitutes the word "crosses" for "reaches".

The system of Ha is unrelated to this recited claim feature. Ha provides a device for monitoring remaining capacity of a battery to power a device. Of particular advantage is the ability to monitor the capacity for traffic mode operation even if the device is in idle or sleep mode. (See column 3, lines 28-34). To accomplish this, a current sink is driven so as to consume a traffic mode current. The resulting voltage at the current sink is a measure of the remaining capacity of the battery (See column 3, lines 5-13). Thus, the system of Ha does not measure current because it drives a current sink using a known current. Furthermore, the system of Ha does not determine if the measured

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current reaches a threshold for a period of time because in Ha there is a comparison involving an instantaneous voltage value without concern of behavior of that value over a period of time.

Applicants agree with the Examiner that Leifer does not disclose or suggest the specific limitations respectively recited in claims 7 and 21 but urge that Ha does not disclose or suggest these limitations either. Accordingly, the combination of Leifer and Ha does not disclose or suggest every limitation recited in claims 7 and 21 and, therefore, does not provide the necessary support to establish a prima facie case of obviousness. Reconsideration and withdrawal of the rejection under 35 USC §103 of claims 7 and 21 are, therefore, respectfully requested.

F. Claim 27 stands rejected under 35 USC §103 as unpatentable over Odaohhara (US 2001/0054878) in view of Ha.

The Examiner admits that Odaohhara does not teach determining that the current supplied to the load crosses a threshold for a period of time, the disconnection of the first battery from the load being in response to such determination. However, the Examiner contends that Ha teaches this feature and that it would have been obvious to modify Odaohhara "to allow users of mobile devices to operate the mobile devices and avoid low battery or dead battery situations."

For at least the reasons expressed above with respect to claim 7 and 21, Applicants believe that Ha does not disclose or suggest any teaching of determining that the current supplied to a load crosses a threshold for a period of time. Accordingly, the combination of Odaohhara and Ha does not disclose or suggest every limitation recited in claim 27 and, therefore, does not provide the necessary support to establish a prima facie case of obviousness. Reconsideration and withdrawal of the rejection under 35 USC §103 of claim 27 are, therefore, respectfully requested.

Summary

In view of the above remarks and amendments, Applicants believe that claims 1-21 and 23-39 are in condition for allowance and passage of this case to issue is respectfully requested.

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To the extent necessary, a petition for an extension of time under 37 C.F.R. §1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 17-0026 and please credit any excess fees to such deposit account.

Respectfully submitted,

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